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## Mid- and Long-Term Health Risks in Living Kidney Donors

IN RESPONSE: Our systematic review and meta-analysis involving 52 studies with more than 100 000 living kidney donors found that there is no evidence of increased risk for adverse psychosocial outcomes, mortality, or major chronic diseases (such as cardiovascular disease or type 2 diabetes) among donor compared with nondonor populations. Living kidney donation is associated with a higher relative risk for end-stage renal disease and preeclampsia, but the absolute risk for these outcomes remains low.

Drs. Mjoen and Holdaas correctly note that the length of follow-up differed among the studies included in our meta-analysis of all-cause mortality. The overall mortality estimate reported in our review reflects the risk for a median follow-up time (that is, the median length of follow-up across the reported studies) of approximately 8 years. However, if mortality rates change over time, the overall mortality estimate presented in our review will not appropriately reflect the risk for longer follow-up (such as that for  $\geq 10$  years). We agree with Drs. Mjoen and Holdaas that the relatively short follow-up reported by published studies is a limitation of the available evidence and that studies reporting longer-term outcomes for living kidney donors are needed.

Drs. Mjoen and Holdaas' also commented on the possible overlap between the living kidney donor population reported in 2 studies (1, 2). We clarify that Segev and coworkers' study included 80 347 donors older than 18 years registered in the Organ Procurement and Transplantation Network through the United Network for Organ Sharing between 1994 and 2009, whereas Berger and colleagues' study included 219 donors aged 70 to 84 years enrolled in the same registry between 1990 and 2010. Given the partial overlap in the

baseline recruitment period between these 2 studies that have used the same living donor registry, their populations may have overlapped. However, because fewer than 4% of donors included in Segev and coworkers' study were older than 60 years at baseline, that the potential overlap would strongly bias the meta-analysis estimate is unlikely. Indeed, there is no meaningful difference in the overall estimate for all-cause mortality with and without inclusion of Berger and colleagues' study in the meta-analysis (risk ratio, 0.60 [95% CI, 0.31 to 1.10] vs. 0.68 [CI, 0.31 to 1.50], respectively).

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